

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

**Applicant(s):** Keith Kang and Greg Dudoff

**Serial No.:** TBA

**Group Art Unit:** TBA

**Filed:** June 27, 2003

**Examiner:** TBA

**For:** HIGH-PRECISION FEMALE FORMAT MULTIFIBER CONNECTOR

**INFORMATION DISCLOSURE STATEMENT**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313  
Sir:

This Information Disclosure Statement is filed in accordance with 37 C.F.R. §§1.56, 1.97 and 1.98. The items listed on Form PTO-1449, a copy of which is enclosed, are made of record to assist the Patent and Trademark Office in its examination of this application. The Examiner is respectfully requested to fully consider the items and to independently ascertain their teaching.

1. ☐ For each of the following items listed on the enclosed copy of Form PTO-1449 that is not in the English language, an English language translation of that item or a portion thereof or a concise explanation of the relevance of that item is enclosed:  

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2. ☐ For each of the items listed on the enclosed copy of Form PTO-1449 that is not in the English language, a concise explanation of the relevance of that item is incorporated in the specification of the above-identified application.
3. ☒ All items listed on the enclosed copy of Form PTO-1449 were previously cited by or submitted to the Patent and Trademark Office in application Serial No. 10/098,990, 10/098,652 and 10/098,255 all filed 3/14/2003 to which the present application claims the benefit of priority under 35 U.S.C. §120.
4. ☒ No fee is due under 37 C.F.R. §1.17(p) for this Information Disclosure Statement since it is being filed in compliance with:  
  - ☒ 37 C.F.R. §1.97(b)(1), within three months of the filing date of a national application other than a CPA; or

- ☐ 37 C.F.R. §1.97(b)(2), within three months of the date of entry into the national stage as set forth in §1.491 in an international application; or
- ☒ 37 C.F.R. §1.97(b)(3), before the mailing date of a first Office action on the merits; or
- ☐ 37 C.F.R. §1.97(b)(4) before the mailing date of a first Office Action after the filing of an RCE under §1.114.
5. ☐ No fee is due under 37 C.F.R. §1.17(p) for this Information Disclosure Statement since it is being filed in compliance with 37 C.F.R. §1.97(c), after the period specified in paragraph 4 above but before the mailing date of a final action or a Notice of Allowance (where there has been no prior final action), and is accompanied by one of the certifications pursuant to 37 C.F.R. §1.97(e) set forth in paragraph 9 below.
6. ☐ **A fee is due under 37 C.F.R. §1.17(p) for this Information Disclosure Statement since it is being filed in compliance with 37 C.F.R. §1.97(c), after the period specified in paragraph 4 above but before the mailing date of a final action or a notice of allowance (where there has been no prior final action):**
- ☐ **A check in the amount of \$180.00 is enclosed in payment of the fee.**
- ☐ Charge the fee to Deposit Account No. 13-4500, Order No. \_\_\_\_\_.  
A DUPLICATE COPY OF THIS SHEET IS ATTACHED.
7. ☐ A fee is due under 37 C.F.R. §1.17(p) for this Information Disclosure Statement since it is being filed in compliance with 37 C.F.R. §1.97(d), after the mailing date of a final action or a notice of allowance, whichever comes first, but before payment of the issue fee, and is accompanied by:
- a. one of the certifications pursuant to 37 C.F.R. §1.97(e) set forth in paragraph 9 below; and
- b. the fee due under 37 C.F.R. §1.17(p) which is paid as set forth in paragraph 11 below.
8. ☐ A fee is due under 37 C.F.R. §1.17(p) for this Information Disclosure Statement since it is being filed in compliance with:
- a. ☐ 37 C.F.R. §1.313(b)(3) or §1.313(c)(1), after the issue fee has been paid and information cited in this Information Disclosure Statement may render at least one claim unpatentable and is accompanied by the attached Petition To Withdraw Application From Issue and fee pursuant to 37 C.F.R. §1.17(h);
- b. ☐ 37 C.F.R. §1.313(c)(2) or §1.313(c)(3), after the issue fee has been paid and information cited in this Information Disclosure Statement is to be considered in a Request for Continued Examination (RCE) or a Continuation application upon abandonment of the instant application and is accompanied by the attached Petition To Withdraw Application From Issue and fee pursuant to 37 C.F.R. §1.17(h).
- c. ☐ The fees due under 37 C.F.R. §§1.17(h) and 1.17(p) are paid as set forth in paragraph 11 below.

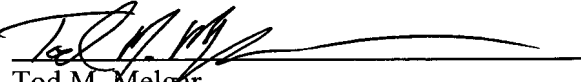
9. ☐ I hereby certify that each item of information contained in this Information Disclosure Statement was first cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement.
- ☐ I hereby certify that no item of information in the Information Disclosure Statement filed herewith was cited in a communication from a foreign patent office in a counterpart foreign application or, to my knowledge after making reasonable inquiry, was known to any individual designated in §1.56(c) more than three months prior to the filing of this Information Disclosure Statement.
10. ☐ This document is accompanied by ☐ a Search Report ☐ Communication which was cited in a corresponding ☐ PCT or ☐ Foreign counterpart application
11. ☐ A check in the amount of \$\_\_\_\_\_ is enclosed in payment of the fees due under 37 C.F.R. §§1.17(h) and 1.17(p).
- ☐ Charge the fees due under 37 C.F.R. §§1.17(h) and 1.17(p) to Deposit Account No. 13-4500, Order No. 4024-4020. A DUPLICATE COPY OF THIS SHEET IS ATTACHED.
- ☒ The Commissioner is hereby authorized to charge any additional fees which may be required for this Information Disclosure Statement, or credit any overpayment to Deposit Account No. 13-4500, Order No. 4024-4029US1. A DUPLICATE COPY OF THIS SHEET IS ATTACHED.

Respectfully submitted,

MORGAN & FINNEGAN, L.L.P.

Dated: June 27, 2003

By:

  
Tod M. Melgar  
Registration No. 41,190

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<b>FORM PTO-1449</b>  <b>INFORMATION DISCLOSURE CITATION</b>			Attorney Docket: <b>4024-4029US1</b>		Serial No.: TBA	
			Applicant: <b>Keith Kang and Greg Dudoff</b>			
			Filing Date: June 27, 2003		Group Art Unit:	
<b>U.S. PATENT DOCUMENTS</b>						
Examiner Initial	Patent Number	Issue Date	Name	Class	Sub-Class	Filing Date
	3,825,318	July 23, 1974	Croset et al.			August 10, 1972
	4,230,385	October 28, 1980	Ammon et al.			February 6, 1979
	4,966,432	October 30, 1990	Okada et al.			October 30, 1990
	5,175,928	January 5, 1993	Grabbe			January 5, 1993
	5,214,730	May 25, 1993	Nagasawa et al.			May 7, 1992
	5,259,052	November 2, 1993	Briggs et al.			February 11, 1991
	5,379,361	January 3, 1995	Maekawa et al.			January 3, 1995
	5,400,429	March 21, 1995	Ames et al.			August 8, 1994
	5,473,716	December 5, 1995	Lebby et al.			December 5, 1995
	5,579,426	November 26, 1996	Li et al.			November 26, 1996
	5,613,024	March 18, 1997	Shahid			December 21, 1995
	5,664,039	September 2, 1997	Grinderslev et al.			September 2, 1997
	5,743,785	April 28, 1998	Lundberg et al.			April 4, 1996
	5,761,350	June 2, 1998	Koh			June 2, 1998
	6,012,856	January 11, 2000	Kim et al.			July 30, 1997
	6,174,424	January 16, 2001	Wach et al.			January 16, 2001
	6,246,813	June 12, 2001	Zheng			March 1, 1999
	6,324,316	November 27, 2001	Fouquet et al.			April 14, 2000
	6,328,482	December 11, 2001	Jian			December 11, 2001
	Pub. No. US2001/0051026	December 13, 2001	Steinberg et al.			December 13, 2001

Examiner	Date Considered
EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP §609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.	

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### FOREIGN PATENT DOCUMENTS

Examiner Initial	Patent Number	Publication Date	Country	Class	Sub-Class	Translation

### OTHER DOCUMENTS (continued)

	Ayliffe, M.H., "Optomechanical, electrical and thermal packaging of large 2D optoelectronic device arrays for free-space optical interconnects", <i>SPIE</i> , Vol. 3490, pages 502-505.
	Basavanhally, N.R. et al., "Optoelectronic Packaging of Two-Dimensional Surface Active Devices", <i>IEEE Transactions On Components, Packaging, And Manufacturing Technology - Part B</i> , Vol. 19, No. 1, pages 107-114, 1996.
	Boisset, G.C. et al., "On-Die Diffractive Alignment Structures for Packaging of Microlens Arrays with 2-D Optoelectronic Device Arrays", <i>IEEE Photonics Technology Letters</i> , Vol. 8, No. 7, pages 918-920, July 1996.
	Cryan, C.V., "Two-dimensional multimode fibre array for optical interconnects", <i>IEEE Electronic Letters Online No.</i> 19980073, October 23, 1997.
	Giboney, K.S., "Parallel-Optical Interconnect Development at HP Laboratories", <i>SPIE</i> , Vol. 3005, pages 193-201, February 1997.
	Hall, J.P. et al., "Packaging of VCSEL, MC-LED and Detector 2-D Arrays", Electronic Components and Technology Conference, pages 778-782, 1998.
	Hayashi T. and Tsunetsugu H, "Optical Module with MU Connector Interface Using Self-alignment Technique by Solder-bump Chip Bonding", Electronic Components and Technology Conference, page 13-19, 1996.
	Ishida, H. et al., "Two-dimensionally arranged 24-fiber optical connectors", <i>OFC '97 Technical Digest</i> , pages 189-190, 1997.
	Jöhnck M. et al., "8X* Pof Based Interchip Interconnection with 2.5 Gbit/s Per Channel Data Transmission", ECOC '98, pages 35 and 36, 20-24 September 1998.
	Kosaka, M. et al., "Plastic-Based Receptacle-Type VCSEL-Array modules with One and Two Dimensions Fabricated using the self-Alignment Mounting Technique," IEEE Electronic Components and Technology Conference, pp. 382 – 390 (1997).
	Koyabu, K. et al., "Fabrication of Two-Dimensional Fiber Arrays Using Microferrules", <i>IEEE</i> , pages 11-19, 1998.

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	Lee, S.S., et al. "Self-Aligned Integration of 8 x 1 Micromachined Micro-Fresnel Lens Arrays And 8 x1 Vertical Cavity Surface Emitting Laser Arrays For Free-Space Optical Interconnect", <i>IEEE</i> , pages 31.2.1- 31.2.4, 1994.
	Liu, Yongsheng et al., "Design, implementation, and characterization of a hybrid optical interconnect for a four-stage free-space optical backplane demonstrator", <i>Applied Optics</i> , Vol. 37, No. 14, pages 2895-2911, 10 May 1998.
	Maj, T. et al., "Interconnection of a two-dimensional array of vertical-cavity surface-emitting lasers to a receiver array by means of a fiber image guide", <i>Applied Optics</i> , Vol. 39, No. 5, pages 683-689, February 10, 2000.
	McCormick, F.B., "Smart Pixel Optics and Packaging", IEEE/LEOS Summer Topical Meeting: Smart Pickels, pages 45 and 46, August 1996.
	Ohki, A. et al., "Multi-channel optical coupling between VCSEL arrays and multimode optical fibers for a 40-channel parallel optical interconnection module", <i>IEEE</i> , pages 47 and 48, 1998.
	G. Proudley, et al., "Fabrication of two dimensional fiber optic arrays for an optical crossbar switch," <i>Optical Engineering</i> , Vol 33, #2, pp. 627-635 , February 1994.
	Sasian, J. et al., "Fabrication of fiber bundle arrays for free-space photonic switching systems", <i>Optical Engineer</i> , Volume 33, No. 9, pages 2979-2985, September 1994.
	Söchtig, J. et al., "Replicated Plastic Optical Components for Optical Micro Systems", <i>IEEE</i> , pages 37 and 38, 1998.
	Tooley, F., "Challenges in Optically Interconnecting Electronics", <i>IEEE Journal Of Selected Topics In Quantum Electronics</i> ", Vol. 2, No. 1, pages 3-13, April 1996.

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	4,744,627	May 17, 1988	Chande et al.			November 3, 1986
	5,853,626	December 29, 1998	Kato			October 15, 1997
	5,400,429	March 21, 1995	Ames et al.			August 8, 1994
	5,671,311	September 23, 1997	Stillie et al.			October 9, 1996
	6,246,813	June 12, 2001	Zheng			March 1, 1999
	6,292,529	September 18, 2001	Marcovici et al.			December 15, 1999
	6,379,053	April 30, 2002	van Doorn			May 30, 2000
	6,442,306	August 27, 2002	Dautartas et al.			December 21, 1999

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Examiner Initial	Patent Number	Publication Date	Country	Class	Sub-Class	Translation
						<input type="checkbox"/> Yes <input type="checkbox"/> No

### OTHER DOCUMENTS (continued)

	International Search Report dated December 13, 2002
	International Search Report dated December 17, 2002
	International Search Report dated December 20, 2002
	International Search Report dated January 2, 2003
	International Search Report dated January 3, 2003

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Examiner Initial	Patent Number	Issue Date	Name	Class	Sub-Class	Filing Date
	5,241,612	August 31, 1993	Iwama			September 15, 1992
	5,446,815	August 29, 1995	Ota et al.			March 10, 1994
	5,548,675	August 20, 1996	Shigematsu et al.			March 31, 1994
	5,550,942	August 27, 1996	Sheem			March 3, 1995
	5,815,621	September 29, 1998	Sakai et al.			February 18, 1997
	6,238,100	May 29, 2001	Sasaki et al.			October 20, 1999
	Published Appln. No. US2002/0131752 A1	September 19, 2002	Boudreau et al.			August 14, 2001
	6,496,624	December 17, 2002	Hikita et al.			April 13, 1999
	Published Appln. No. US2002/0197047 A1	December 26, 2002	Basavanhally et al.			June 21, 2001
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